



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/516,753

08/18/2005

Abdelali Hannoufa

00270.0078USWO

2784

23552 7590 09/22/2008

MERCHANT & GOULD PC

P.O. BOX 2903

MINNEAPOLIS, MN 55402-0903

EXAMINER

PAGE, BRENT T

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

09/22/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,753	<b>Applicant(s)</b> HANNOUFA ET AL.	
	<b>Examiner</b> BRENT PAGE	<b>Art Unit</b> 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 5-10, 12, 16-28, 31 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11, 13-15, 29, 30, 32 and 34-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/2004, 3/2005, 9/2005, 10/2007, 5/2008, 8/2008</u> | 6) <input type="checkbox"/> Other: _____  |



**DETAILED ACTION*****Election/Restrictions***

Applicant's election with traverse of Group XV, claims 1-4, 11, 13-15, 29, 30, 32 and 34-42 in the reply filed on 06/24/2008 is acknowledged. The traversal is on the ground(s) that a search burden is not present. This is not found persuasive because there are multiple method steps and vector components that differ between the elected invention and the nonelected inventions.

The requirement is still deemed proper and is therefore made FINAL.

***Specification***

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Paragraphs 268, 294 and 303 each have an embedded hyperlink. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-4, 11, 13, 15 and 29-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites "wherein in said step of introducing (step i))". There is a lack of antecedence as claim 1 does not recite a step of "introducing". It is also unclear what limitation is meant by the unbalanced parentheses. If a

Art Unit: 1638

typographical error, it should be amended by Applicant. New Matter should be avoided.

Claim 4 recites "wherein said step of introducing (step ii)". There is a lack of antecedence as claim 1 does not recite a step of "introducing", and even the step of "providing" is not in step ii. It is also unclear what limitation is meant by the unbalanced parentheses. If a typographical error, it should be amended by Applicant. New Matter should be avoided.

Claims 11, 13, and 15 all recite "wherein in said step of introducing (step i)". There is a lack of antecedence as claim 1 does not recite a step of "introducing". It is also unclear what limitation is meant by the unbalanced parentheses. If a typographical error, it should be amended by Applicant. New Matter should be avoided.

Claims 29 and 30 recite "(SEQ ID NO:81)". It is unclear whether the SEQ ID NO in parentheses is supposed to be a claim limitation. Claim limitations should not be contained in parentheses. New Matter should be avoided.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1638

Claims 1-4, 13-15, 34, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Collingwood (CA 2407460, published 4/27/2001).

The claims are drawn to a method to regulate expression of a nucleic acid sequence of interest comprising providing a eukaryote having a first nucleotide sequence comprising a nucleic acid of interest operably linked to a first regulatory region, an operator sequence capable of binding a fusion protein and a second nucleotide sequence comprising a second nucleic acid sequence comprising a fusion protein, said fusion protein comprising a DNA binding protein, capable of binding said operator sequence and a recruitment factor protein, capable of binding a chromatin remodeling protein and growing said eukaryote, wherein the eukaryote is a plant, wherein the operator sequence is selected from ROS operator, Tet operator, sin3, VP16, GAL4, Lex A, Ume6, ERF, SEBF, CBF and a DNA binding domain of a transcription factor and wherein the recruitment factor is selected from a histone acetylase recruitment factor, histone deacetylase recruitment factor, KID, ADA, SAGA, STAGA, PCAF, TFIID, TFIIC, bnKCP1 and BNSCLL, and wherein said sequences are introduced via transformation.

Collingwood et al teach a method of regulating a nucleic acid of interest comprising a first nucleic acid of interest which is a DNA binding domain of zinc finger transcription factors, and a second nucleic acid of interest encoding a fusion protein between a DNA binding domain and a component of a chromatin remodeling complex, a transcriptional repression domain all within a plant (see pages 55-56 and claims 20 and 23 and in particular 43), wherein the recruitment

Art Unit: 1638

factor is a histone deacetylase transcription factor. The claims and Examples specifically recite both a method of regulating gene expression of chromatin remodeling factors as well as the regulation of gene expression in plants.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 11, 13-15, 29-30, 32, and 34-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collingwood (CA 2407460, published 4/27/2001) as applied to claims 1-4, 13-14, 34 and 42 above, in view of Ma et al (1995 Plant Physiology 109:341-346), and further in view of Jenster et al (1997 PNAS 94:7879-7884).

The claims are drawn to the above wherein one or more of the nucleotide sequences are incorporated into the plant by crossing (claim 11), wherein the recruitment factor is BnSCL1 (claims 29, 30, 32, 36, 40), wherein the chromatin remodeling protein is HDA19 (claims 35 and 39), and wherein the DNA binding protein is VP16 or GAL4 (claims 37 and 41).

Collingwood et al teach a method of regulating a nucleic acid of interest comprising a first nucleic acid of interest which is a DNA binding domain of zinc finger transcription factors, and a second nucleic acid of interest encoding a

Art Unit: 1638

fusion protein between a DNA binding domain and a component of a chromatin remodeling complex, a transcriptional repression domain all within a plant (see pages 55-56 and claims 20 and 23 and in particular 43), wherein the recruitment factor is a histone deacetylase transcription factor. The claims and Examples specifically recite both a method of regulating gene expression of chromatin remodeling factors as well as the regulation of gene expression in plants.

Collingwood et al do not teach the introduction of nucleic acids into a plant by crossing plants, or BnSCL1, HDA16, or VP16 or GAL4.

Ma et al teach that two genes can be introduced into a plant together by cross pollination of individually transformed plants (see second paragraph in right column of page 341, for example).

Jenster et al teach a method of regulating gene expression utilizing a construct comprising histone deactelyase 1 (HAD1) and the GAL4 binding domain.

It would have been obvious to one of ordinary skill in the art that the components taught by Ma et al and Jenster et al are merely design choices for practicing the invention taught by Collingwood et al, as suggested by Collingwood et al. Collingwood et al detail the method taught above and at numerous points mention that many different chromatin remodeling proteins may be used in the invention that many other operator sequences and DNA binding sites may be used (see pages 14-15 and pages 21-23 discussing binding sites, as well as pages 23-33 detailing the numerous chromatin complexes). Jenster et al teach two of these components and although Histone deacetlyase 16 is not



Art Unit: 1638

taught it would be an obvious design choice envisioned by Collingwood et al. Jenster et al do teach the GAL4 binding domain and Collingwood further teaches that such sites are a matter of choice in the invention. Arriving at the plant containing the nucleic acids may be practiced in numerous ways one of which is taught by Ma et al wherein two plants are crossed to generate a plant comprising both constructs. Given the state of the art and the disclosures by Collingwood et al, Jenster et al and Ma et al, one of ordinary skill in the art would have recognized the components taught by Jenster et al and Ma et al as mere design choices that could readily be used in the method taught by Collingwood et al.

### ***Double Patenting***

Claims 1-4, 11, 13 and 32 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-3, 5, 12, 14 and 33 of copending Application No. 11067425. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT PAGE whose telephone number is (571)272-5914. The examiner can normally be reached on Monday-Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571)-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Phuong T. Bui/  
Primary Examiner, Art Unit 1638

Brent T Page